MASSACHUSETTS STATE SUSTAINABILITY PROGRAM
PUBLIC LEADERSHIP, STEWARDSHIP, COMMITMENT

State Sustainability

EXECUTIVE OFFICE of ENVIRONMENTAL AFFAIRS

Vol. 4: Renewable Energy Summer 2006

This newsletter is part of a quarterly series published by the Massachusetts State Sustainability Program, which works to minimize the environmental impacts resulting from state government operations.
For more information on the Program, please visit: http://www.mass.gov/envir/Sustainable

Mass. Maritime Academy Installs Wind Turbine

Campus to reduce electricity costs by more than 27%

On April 25, 2006 the Mass. Maritime Academy in Bourne, Massachusetts became the first Massachusetts State Agency to install a large wind turbine at a state facility. The 660 Kilowatt (KW) wind turbine is expected to generate over 1.4 million kWh per year and generate over one-quarter of the campus electricity needs. The power generated by the turbine is equivalent to carbon emissions totaling 556 tons, an amount equal to 7.5% of the campus total carbon emissions.

The 164 foot Vestas tower is located near the campus ballfields and reaches a total height of 241 feet at the tip of the blade. The project was designed and bid by the Sustainable Design and Energy Efficiency team at the Division of Capital Asset Management, with strong support from MMA President Richard Gurnon and his staff.

The turbine cost just over $1.6 million to construct, most of which was offset through a $500,000 construction grant from the Mass. Technology Collaborative, and state funding in the amount of $650,000. When fully operational, the turbine will reduce energy bills on campus by over $210,000 per year. Additional revenue of approximately $86,000 is expected from energy sales to the grid and the sale of Renewable Energy Credits into the Massachusetts REC market (see newsletter vol. 1 for more information on RECs). Payback on the turbine is between 5 and 6 years.

“This turbine is an example of how the environment, economics and education come together,” said Gurnon. “Our cadets will have the benefit of learning about this innovative technology, our campus will save money, and we do our part for the planet. A win for us all.”

The 660 KW turbine at Mass. Maritime Academy

Wind Turbine Tour

MMA Facilities Director, Paul O’Keefe, talks to some of the 35 agency staff who attended an August 31st tour of the campus turbine.

State Agencies increasing Solar Installations

Current Solar Photovoltaics (PV) installations at state agencies:

Cape Cod Community College: 27kw + 2.4kw

Department of Conservation and Recreation, Spectacle Island: 8kw

Mass College of Liberal Arts: 9kw

Mass Highway Department: Numerous road signs around the state

Mount Wachusett Community College: 5kw

Springfield Technical Community College Business Park: 31.5kw

UMass Amherst: 7.5kw (engineering bldg) + 23 pv parking lights

UMass Lowell Engineering Building: 13.5kw

Plans are underway to significantly increase Solar PV installations at state agencies to meet our Million Solar Roofs target of 1 MegaWatt.

The new Solar PV installation at Spectacle Island, part of the Harbor Island system managed by the Department of Conservation and Recreation.

UMass Lowell 1st Renewable Energy Credit (REC) State purchase

In an effort to reduce its environmental impacts resulting from greenhouse gas emissions, beginning April 2006, the University of Massachusetts at Lowell will spend $9,000 to purchase 4,000 MWh of renewable energy credits (RECs) each year for the next three. The purchase of these RECs will offset emissions from roughly 13% of the campus's total annual electrical load.

The RECs are certified by Green-e, a non-profit organization that reviews renewable energy providers to make sure they and the power being sold meet minimum environmental criteria.

The Lowell purchase was part of a broader REC purchase of over 20,000 MWh, made by multiple institutions in the Commonwealth of Massachusetts.

Siting Renewable Energy Projects

Before you hire a contractor and begin building your solar PV or wind turbine, you should know whether your site is appropriate for a renewable technology. Below are guidelines for determining whether solar or wind may work for you.

Got a Good Solar Site?

1. Unshaded Flat or South-facing roof
2. Energy efficient building with newer roof
3. Grid connected building with electricity use year-round, but particularly in summer
4. Educational uses/tours possible for the solar site

See links below for a full Solar site survey

Have a Good Wind Site?

1. Wind speed of or better than 6 meters per second @ 50 meters
2. 3+ miles away from the nearest airport
3. Onsite energy load to use turbine output
4. 600+ feet from residential abutters
5. Away from wetlands or endangered species habitat

Please contact Josh Bagnato, if you answered yes to all the above or if you need help finding the answers.

UMass Amherst PV parking lot system

Photovoltaic lamps at the UMass Amherst Mullins Center field house parking lot reduce campus electric consumption by 14,150 kilowatt hours, reducing CO2 emissions by 7 tons per year. The UMass electric bill is reduced by well over $2,000 annually.

Renewable Energy Links

Solar Site Assessment Survey: http://www.mass.gov/envir/Sustainable/documents/pv_site_selection_survey.doc

U.S. EPA Green Power Partnership: http://www.epa.gov/greenpower/index.htm

MA DOER Renewable Energy Programs: http://www.mass.gov/doer/programs/renew/renew.htm

U.S. DOE Energy Efficiency and Renewable Energy: http://www.eere.energy.gov

MA Renewable Energy Trust: http://www.mtpc.org/renewableenergy/index.htm

Key Agency Contacts:

To learn more about renewable energy issues, projects, and/or technologies, please contact one of the state employees below.

Wind map and site assessment:
Josh Bagnato, EOEA 617-626-1041

State Sustainability Pilot project funding & assistance:
Ian Finlayson, EOEA 617-626-4910

Large Renewables Projects: Funding: **Michael Reinhardt, DCAM 617-727-4030 x 234**

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